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Reckoning Our Ultrasocial Past

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In the almost 20 years since Paul Shepard wrote his brief reflection "Radical Politics" not much has changed in the approach of our "intellectual furor" and its "narrow notion of historical progress" (Shepard 2015, 91). The social and ecological ills that define our historical moment have increased at a rate consistent with the number of academic articles written about how to solve them. And our social and environmental movements continue to be informed by their limited vision of revolutionary change. College students are taught if they recycle, eat locally, rally for divestiture, and push for renewable energy they will be well on the road to reckoning human existence with Earth. Women who have managed a modicum of economic liberation have bought it unwittingly at the expense of exponential growth curves and the drudgery of the double day. And the list goes on. We are no more expansive in our approach to the problems *de jour* than we were when Paul Shepard stood at the gates to eternity and wrote his essay. I suspect progress might have been better, revolution more substantial, if we had stuck to Paul's first social principle—"which asks compliance with the truly radical Other: the constraints and obligations of biological reality of ecosystem and planetary communities composed of Beings." This is the difficult matter of our responsibility to find a rightful place within the ecosphere. All else should derive from this but never has because to abide by this principle means reconsidering the gestalt of the Neolithic and this is a difficult matter.

Unfortunately, although little has changed since 1995 in our intellectual disposition or the approach of our "radical politics" much has changed in our problematic relationship to Earth. The exponential curves that define the dynamic of human civilization have continued their relentless upward path. And due to their inevitable trajectory, Earth has become overwhelmed with humans, *their* domesticated animals, *their* material artifacts and *their* hubris. Human population stood at about 5.6 billion in 1995 and in the course of these 20 ensuing years we humans have managed a net addition of another 1.7 billion, about the total human population of the earth in 1920, a mere four years before the birth of Paul Shepard. Although we register this as significant we don't register it as game changing. In fact, we demonstrate little capacity to be circumspect about our present situation.

In the shadow of these trends the creative unfolding of the ecosphere has been narrowed, and our possibility for redemption diminished. The ecosphere is much less the domain of a "million secret tongues," with ours being but one of them (Shepard 1982, 23). More and more, ours is the only voice we hear. Scientists tell us the extinction rate is now exponentially greater than a normal background rate, numbering in dozens of species lost per day. Even given the inexactitude of these estimates there is room for despair as countless years of evolution is

systematically, indeed almost methodologically eliminated. It is a disservice to Earth and to ourselves if not an outright abomination, yet we register it as growth in our stock portfolio or a recipe to eliminate poverty.

We need to reorient the vision that informs our social and environmental movements so that they amount to something more than "half measures," to use Wes Jackson's lexicon. This will require a fundamental reorientation of our self-perception and our place in the ecosphere, and a conscious awareness that this altered perception must provide the context within which we structure and envision change. In homage to Paul Shepard we might begin to rethink our history so that it offers us insight on how we became species-centric with a belief that we stand apart and above a world that has no "intrinsic structure." If we do stand apart it will only be demonstrated by intentionally reclaiming a rightful place on Earth. We should keep in mind that this is not a matter of individual choice, it is the far reaching challenge of reconfiguring society and economy. With a world of over 7 billion people and an entrenched, expansionary, and largely unjust global economic system, this challenge will not be solved with a simple tax on carbon.

Paul provided guidance for this exercise. He observed this: the turning point in human history was the Neolithic revolution. We would do well to ponder this fact because we have a collective amnesia about our history. We treat the long stretch of human existence before the agricultural revolution as if it has no significance in enlightening us about our present circumstances. This distortion of history did not escape Paul's radar. He tells us, "Prehistorical man stands sentenced to the limbo of savagery by a conventional historical view that is seldom questioned… For every man whose life was improved by that momentous Neolithic revolution, hundreds lost health, freedom, and social dignity. Because a fortunate few controlled the recording of history, civilized culture became a propaganda machine for itself… Yet, from the beginning, agriculture failed our species, and now, after fifty centuries with scarcely a word raised against its mythology of virtue and security, it is failing the modern world, failing to nourish it both physically and spiritually" (Shepard 1973, 87). We now live with the legacy of the Neolithic revolution in the form of that behemoth: our global economic system.

The agricultural revolution so defines us and so dominates our perception of ourselves that we have lost the capacity to fully appreciate the tens of thousands of years we spent as humans before the onset of agriculture. And yet "The fifty centuries from here back to that point of earliest urbanity, to the wheel and the advent of writing, embracing the whole tumult of civilized man, were prepared for and made possible by the quiet fifty centuries before that" (Shepard 1982, 19)—actually a time much longer than that. Few, other than Paul, have explored or speculated much on the expectations of a genome carved out of the Pleistocene. Paul believed that one of the defining characteristics of this heritage was that humans evolved

to have a very long period of maturation from infancy to adulthood. In his words "It would be fair to say that neoteny more than any other trait makes us human" (Shepard 1996, 160).

Paul defined neoteny to be: "… the biological commitment to that learning program, building identity and meaning in the oscillation between autonomy and unity, separateness and relatedness" (Shepard l982, 110). He tells us that an appropriate maturation process involved "timed events that involve the person with others and with the nonhuman in an extraordinary interplay" (Shepard l982, 110-112). The long maturation of humans is structured to be appropriately punctuated with the right queues and transitions, which allow individuals to both individuate and then connect to the larger world. If done property the result is a mature adult who has "a good sense of being in the cosmos…" (Shepard 1982, 110).

In short, human ontogeny is a complex and nuanced process done best in a culture informed by and embedded in a varied and numinous natural world. As Paul observed, "We are free to create culture as we wish, but the prototype to which the genome is accustomed is Pleistocene society" (Shepard 1998, 38). Paul maintained that civilization beginning with agriculture "had deformed the ontogeny of its members… Agriculture removed the means by which men could contemplate themselves through any terms other than themselves (or machines)" (Shepard 1982, 114). The chances for full and healthy maturation of humans are thwarted if they are mostly self-referential. In Paul's mind a wholly domesticated world created a "solipsistic psychology" that resulted in the propensity toward domination and submission. The processes of "separations and symbioses" that punctuate healthy maturation simply fail and humans become stuck in a juvenile state without a "mature sense of relatedness" (Shepard 1982, 110). Agriculture created a society characterized by relationships of domination and submission and a view of nature as unforgiving and hostile and in need of subjugation. He pointed out: "Agriculture not only infantilized animals by domestication, but exploited the infantile human traits of the normal individual neoteny" (Shepard 1996, 146).

The truth is we lived in cultures embedded in ecologies that were able to structure a healthy maturation for most of the length of our human history. We were not caught up in systems of domination and hierarchy with the need to subdue and control Earth. Instead, we embraced Earth and were moulded by it. Yet most of our radical politics are oblivious to the stretch of human history when we actually achieved outcomes that are now the desire of our many environmental and social movements. I suppose the practical question is whether we would conduct our revolutionary movements differently if we actually understood that 95 percent of our existence as a species was spent in societies that were non-hierarchical, non-expansionary, ecologically embedded and nurturing of healthy human maturation. Paul simply didn't believe that the wisdom of tens of thousands of years of successful ontogeny was irrelevant to understanding the ontological failure of our present circumstances.

The time before agriculture and the transition to agriculture present the difficult task of interpreting prehistory. Paul offered this observation on the matter:

> Few prehistorians suppose that those earliest farmers and first domesticators east of the Mediterranean were conscious revolutionaries or even that changes were dramatic in a single lifetime…Yet by the time civilization began in the great city-states of Egypt and Mesopotamia, the tradesmen, bureaucrats, and tillers of the soil exceeded their hunter forebears in possessions and altered their surroundings—and were the creators and victims of new attitudes, expectations, and mythology. How that transition toward urbanism took place we may guess only with educated uncertainty. (Shepard 1982, 19)

Although educated uncertainty is frustrating in its inexactitude, further reflection on this momentous revolution ought to rank at least as high as the intensity with which we ponder the industrial revolution especially since the agricultural revolution ushered in many aspects of modern life that we now seek to remedy. Paul helped us to appreciate the magnitude and implications of the agricultural revolution for human ontogeny and to understand that agriculture engendered a certain "psychopathology" that led us to this historical moment. The innate plasticity of humans clearly has its dangers. It seems this plasticity can be channelled into a lengthy and successful ontogeny or else it can be channelled into a thwarted ontogeny and a permanent state of immaturity.

In deference to the importance of Paul's seminal work, a further exploration of the agricultural revolution is warranted. In spite of my affiliation with a profession that has incorporated the language of domination into its fabric and sees Earth as natural capital on a good day and resource on a bad day, I have taken Paul's message seriously. The agricultural revolution provides an indispensable context for understanding our present time. The structure and dynamic of our global economic system is the legacy of the agricultural revolution and now presents a multitude of intractable challenges, for example, trying to simultaneously solve the problem of poverty through growth while averting the wholesale ecological collapse of the planet.

What is not clear about the agricultural revolution is why we made a revolutionary transition to an economic order that one could argue has clearly put us at odds with ourselves and Earth. In order to further entertain this question it is necessary to shift our focus from revolution to evolution and to understand that the transition to agriculture was not simply a revolution but the outcome of evolutionary forces that have no predetermined plan. Evolution does not necessarily end a species in a "better" place. This is especially relevant to humans. Success in the context of evolution is ultimately determined by fitness narrowly construed as reproductive success.

I have made the radical and iconoclastic argument (with John Gowdy) that the transition to agriculture made humans an *ultrasocial* species much like ant and termite societies that similarly practice agriculture (Gowdy and Krall 2013a, 2013b, 2015). Ultrasociality can be thought of as an extreme rendering of sociality. It is characterized by an extensive interdependency in the material provisioning of existence. In fact, the interdependence is so extreme that the individual cannot survive independently but rather participates as part of a large interconnected economic network that assures the material reproduction of species and individual life. Agriculture was a major *evolutionary* transition to ultrasociality for the species that engaged it.[1]

This is a case of convergent evolution where ants, termites and humans evolve into similarly structured societies around agriculture through similar selection pressures even though they are obviously very different species. Understanding ultrasociality as an evolutionary matter requires that the boundaries of evolution be extended beyond the gene and into the realm of the group and the economic ordering of a species. There is ample precedent for extending the boundaries of evolution, although economic order has not previously been highlighted (Richerson & Boyd 2005; Wilson 1997; Wilson 2012).

Some species of ants and termites practice agriculture and have done so as for long as 50 million years. Many species of ants and termites cultivate a fungi and it is around this cultivation that their vast megalopolises arise. These agricultural 'societies' mirror human society in both structure and dynamic. Like human societies they are profoundly interdependent in productive life, owing to an extensive division of labour around their internalized system of food production. And like humans, their subjugation of the individual to the demands of the whole and their dynamic of expansion and domination of ecosystems are nothing short of astounding. They too are ultrasocial species and, evolutionarily speaking, they are extraordinarily successful.

If we are disinclined to attribute the similarities between ants and humans to coincidence, I would suggest that we have important insight to garner from this story of convergent evolution. We are led to look at the common evolutionary forces that created a similar outcome for otherwise entirely dissimilar species and in particular to see the configuration of economic life as a unique part of the complex matrix of evolution. Fox example, if agriculture demands and encourages a more extensive division of labour, then a capacity for differentiation is necessary to engage agriculture as a viable strategy. In this sense the division of labour can be viewed as an economic driver of the reconfiguration. The benefit to the

[1] Although E.O. Wilson also holds that humans became ultrasocial, he claims this change came about when humans began defending campsites. We believe it took agriculture and the profound interdependence around an essentially internalized system of production to make humans ultrasocial.

species that engage in agriculture is increasing access to and control over food production and the potential for species expansion. Obviously humans had this capacity for differentiation and cohesion, endowed as they are with plasticity, sociality, and the force and mechanism of culture to facilitate the restructuring that was necessary. Insect agriculturalists also have this capacity as seen by the amazing morphological differentiation that accompanies the diverse roles they develop around agriculture as well as their capacity for communication and cohesion. It doesn't matter that the mechanisms of differentiation and cohesion are different for these diverse species, only that they have the potential for such reconstitution.

The configuration and dynamic of human societies became so profoundly altered with the adoption of agriculture that this change must be thought of as a change in kind and not in degree. Groups that engaged agriculture were so profoundly interdependent they essentially became units of selection. All were inclined towards surplus production and expansion (ever more domestication), and in competition with non-agricultural groups had the selective advantage, if numbers are any indication. Humans also created institutions to accommodate, reinforce, and interpret the structure of material life that had taken hold with agriculture—hierarchy, property, markets, and money come to mind. These reinforced and encouraged the economic dynamic at play, further extending the division of labour and the expansion of the material life of humans. In the 5,000 years after agriculture began in the Levant, large-scale state societies developed around agriculture. This is a very brief span of time, evolutionarily speaking. As well, it is brief relative to the long history that humans spent as hunters and gatherers.

Paul clearly understood the significance of the agricultural revolution for humans, although he didn't elaborate it in this way. He did have an appreciation for the fact that economic structure was important in determining the characteristics of a society. He tells us:

> Agriculture tends to be associated with high food accumulation, population density, social stratification and compliance. At the other end of the series are the low food accumulators—hunter-gatherers—as with a high sense of personal identity, social independence, emphasis on assertion and self reliance, high self control, and low social stratification. …What we come to is an uneasy sense of economic determinism. (Shepard 1992, 69)

There are benefits to extending Paul's work by exploring agriculture as an ultrasocial evolution of humans. In this light, our present madness with regard to the destruction of Earth is not only a problem emanating from the thwarted maturity engendered with agriculture but the result of an economic structure and dynamic engaged with agriculture that placed society on a problematic path. Agricultural societies, especially those that developed around annual grains, were extremely expansionary and came to dominate, denigrate, and simplify ecosystems. And

ultimately they became hierarchically structured so inequality began to rear its ugly head. In the end, one can easily argue that for humans, the transition to agriculture created a tension between our Pleistocene genome and its expectations, and the demands and the structure of our social/economic evolution.

In order to illuminate this evolutionary perspective on agriculture and humans it is helpful to highlight it in the following way. Agriculture offered the opportunity for control over the production of food, no longer merely a matter of harvesting what nature offered, but instead actively directing photosynthetic production toward cultivated crops, thereby increasing the quantity of food through active participation in *production*. This was best accomplished if groups could reconfigure themselves because agriculture, especially grain agriculture for humans, called forth a more elaborate division of labour. Although a division of labour had always been basic to human society, before the Neolithic era it had been relegated primarily to age and gender and was neither rigidly nor mechanistically structured around the material provisioning of life. For example, in the Paleolithic era both men and women gathered and hunted, although the purview of big game was that of men. All had some modicum of self-sufficiency and self-determination in these essential activities and each had a certain executive discretion over what they did, how they did it, and to some extent, when they did it.

As the active cultivation of annual grains increased, the pre-existing human propensity for cooperation, already honed during the Pleistocene, became structured into an articulate economic whole. Each individual was channelled into a rigidly defined role; the division of labour expanded around planning, preparing the soil, planting, cultivating, fighting infestation, harvesting, processing, storing, irrigating, defending, distributing etc. And as surplus production accelerated, the division of labour was further elaborated and the roles of agriculturally non-productive members of society expanded. As well the increasing birth rates associated with agriculture meant much longer periods of time spent in child bearing and child rearing which more narrowly specialized women in the role of reproduction. It is important to understand that this enhanced division of labour around the material reproduction of society was a way of structuring the plasticity inherent in the human species into a functional economic whole, where clear economic and evolutionary benefits resulted: increased productivity, surplus and expansion of the species—as in biological terms—increased fitness. The presence of rich carbon stocks in post-Pleistocene soil helped to kick-start the agricultural revolution, which had an autocatalytic element to it, and took on a life of its own.

The more extensive the division of labour and the more profound the material interdependence around a few crops, the more individual autonomy diminished, certainly in a material sense. The human species became more super-organismic, acting as a functional whole because no one could survive materially on his or her own. The place of humans both

individually and collectively among the diverse and numinous natural world was replaced by an essentially mechanistic attachment to a highly articulated self-referential economic whole. Lewis Mumford described the structure of the large state societies that quickly evolved in Sumer and Egypt after the agricultural revolution as "an invisible machine" that "anticipated the machine itself." He tells us there was "a mechanical order to society" and indeed "a centralized intelligence" (Mumford 1966, 191, 166). In the millennia since agriculture began, this altered economic structure has evolved into a global economic order, eliminating outlier cultures and languages and leaving us to wonder whether there is room for human agency to get control of the present rendition of this evolutionary path—viz., global monopoly finance capital.

It is important to acknowledge our complex evolutionary history and to understand that this history is not simply about our genome, it is a more complex story of evolution involving the formation of agricultural 'groups,' the importance of these groups in natural selection and the role of economic structure in the matrix of evolution. The agricultural group is a highly articulate economic whole with a specific structure, dynamic and a selective advantage. Some of our best human attributes have been channelled in a perverse way in this restructuring—like our propensity for cooperation—which has come to be rigidly structured in an economic superorganism of which each individual is simply one of the cogs. I must reiterate that evolution has no plan and there is no movement to an ever more perfect world.

In the case of our transition to agriculture we humans were placed on an extremely problematic path. Our evolutionary legacy has made us schizophrenic. On the one hand, we are adapted to function best amidst an extensive non-human world by virtue of our Pleistocene genome, as Paul so aptly argued. On the other hand, the altered economic configuration that began with agriculture placed humans on a path hell bent on domestication of every nook and cranny of Earth. This works against the demands of our Pleistocene genome. Large scale agricultural systems and their legacy, global monopoly finance capital, are extraordinarily difficult to disengage because their complexity, inter-connectedness and internal dynamic mean they have tentacles that reach into every nook and cranny of life, undermining Earth and healthy human ontogeny.

Paul understood that agriculture reoriented humans both psychologically and materially—it began to "reshape the condition of human existence" and the "felt experience" of day-to-day life. He was a visionary. Had he been given more time on Earth, I like to believe that he might have come to the same conclusion that I have: that we are not simply psychologically and developmentally thwarted because of agriculture—we are evolutionarily schizophrenic because of it. I know that Paul was not finished thinking about agriculture when he left this world. One night in the final weeks of his life when he began to move between worlds, he told my mother

that if she woke up and he was not there she shouldn't worry; he would be in the back yard scything. He was still contemplating agriculture in the final moments of his life.

The ultimate challenge we have on our hands is one of reckoning our schizophrenic evolutionary history: the demands of a Pleistocene genome for healthy human ontogeny and an economic evolution that has created an imperative to completely and irrevocably domesticate, dominate and destroy the planet. Paul was correct when he told us, "Perhaps hope lies in going back over our human history to our beginnings to refashion new approaches to living on the earth that conform to how the world was made" (Shepard 2015, 92). In order to do so our social and ecological ills must be re-contextualized through a refinement of our understanding of our ultrasocial history. We have not become ever more perfect as a result of our evolution since the Holocene, simply more conflicted. The question of who we are looms large as we struggle with the momentous challenge of finding our rightful place in the ecosphere. Our project now is not simply to reckon our cooperative altruistic tendencies with our 'darker side'; it is to reckon the tension embedded in our complex evolutionary history.

We are required to realign the material configuration of our society otherwise known as 'the economy' to comply with the demands of our Pleistocene genome. If we can't do this we will be left to reconcile ourselves to our Neolithic rather than our Pleistocene self. Gazing into an amazing atta (leafcutter) ant colony we might ask ourselves if this is what we choose to be. We should remember the wisdom of Paul when he told us: "Beneath the veneer of civilization…lies not the barbarian and animal, but the human in us who knows the rightness of birth in gentle surroundings, the necessity of a rich nonhuman environment, play at being animals, the discipline of natural history, juvenile tasks with simple tools, the expressive arts of receiving food as a spiritual gift rather than as a product, the cultivation of metaphorical significance of natural phenomena of all kinds, clan membership and small-group life, and the profound claims and liberation of ritual initiation and subsequent stages of adult mentorship" (Shepard, 1982, 129). We should strive for an economic order that gives us this instead of the human equivalent of a super-organismic ant colony.

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